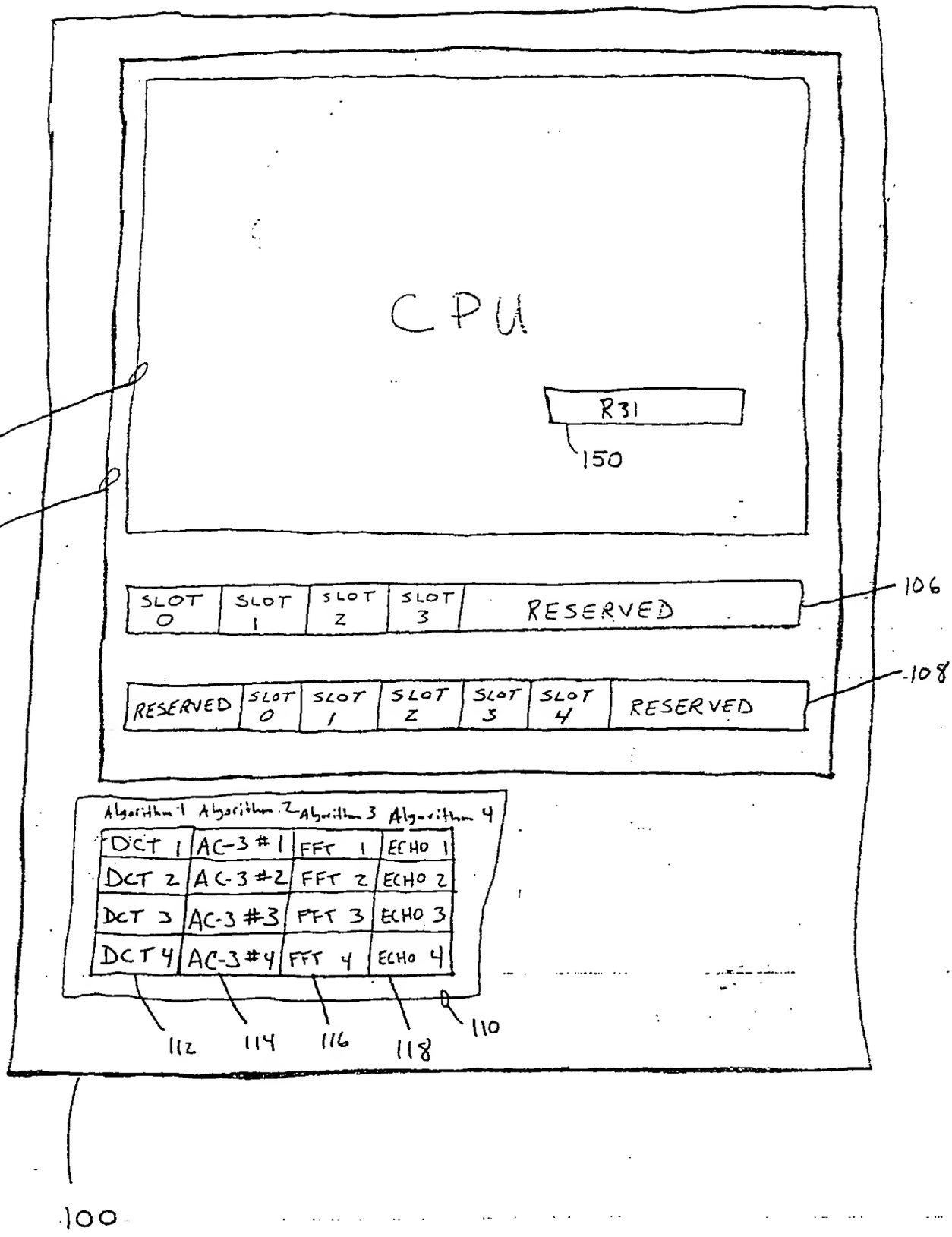
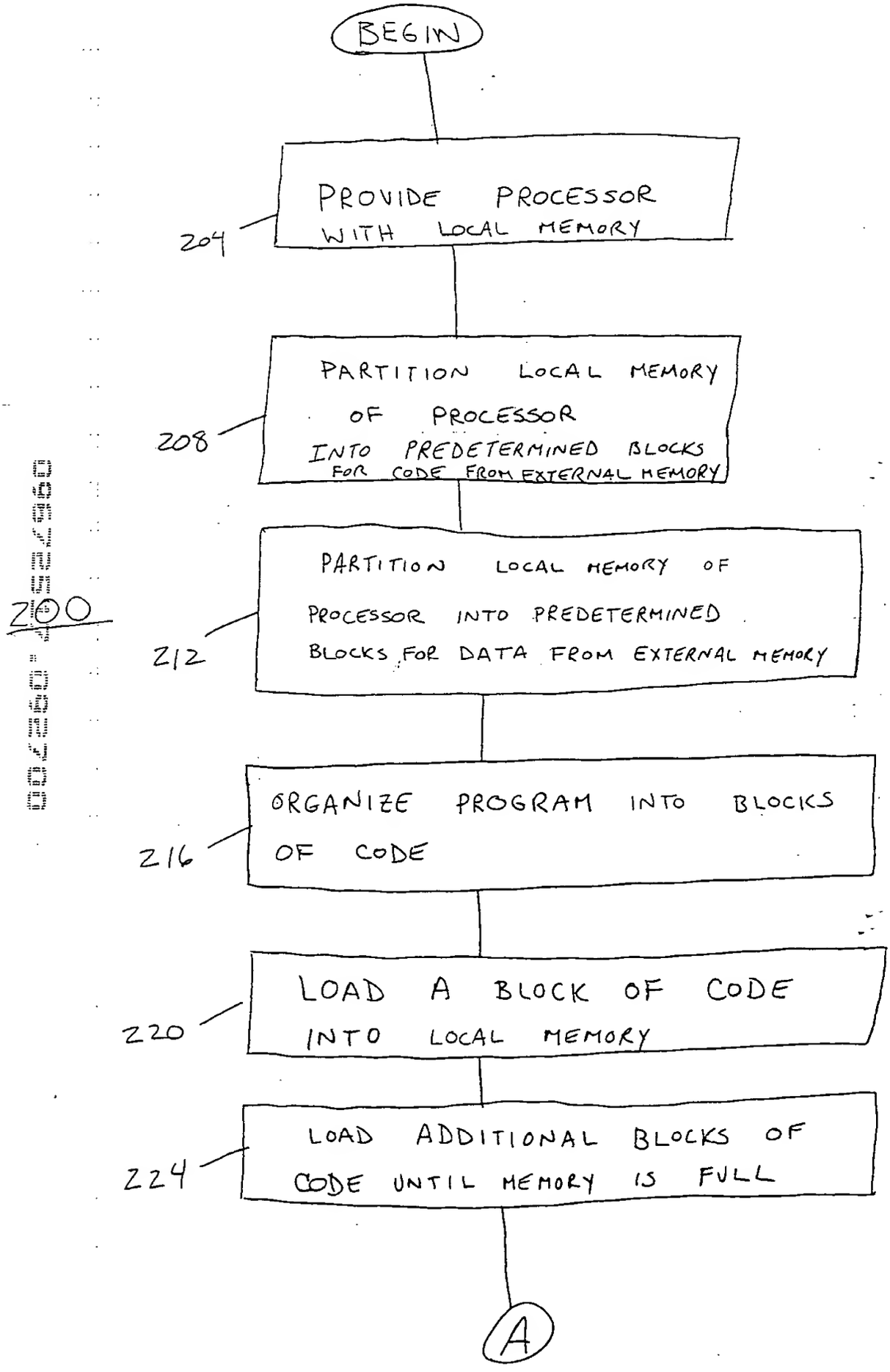

CPU
R31
150
104
102
SLOT 0
SLOT 1
SLOT 2
SLOT 3
RESERVED
106
RESERVED
SLOT 0
SLOT 1
SLOT 2
SLOT 3
SLOT 4
RESERVED
108
Algorithm 1
Algorithm 2
Algorithm 3
Algorithm 4
DCT 1
AC-3 #1
FFT 1
ECHO 1
DCT 2
AC-3 #2
FFT 2
ECHO 2
DCT 3
AC-3 #3
FFT 3
ECHO 3
DCT 4
AC-3 #4
FFT 4
ECHO 4
110
112
114
116
118
100

FIG. 1

FIG. 2a


BEGIN
PROVIDE PROCESSOR WITH LOCAL MEMORY
204
PARTITION LOCAL MEMORY OF PROCESSOR INTO PREDETERMINED BLOCKS FOR CODE FROM EXTERNAL MEMORY
208
PARTITION LOCAL MEMORY OF PROCESSOR INTO PREDETERMINED BLOCKS FOR DATA FROM EXTERNAL MEMORY
212
200
ORGANIZE PROGRAM INTO BLOCKS OF CODE
216
LOAD A BLOCK OF CODE INTO LOCAL MEMORY
220
LOAD ADDITIONAL BLOCKS OF CODE UNTIL MEMORY IS FULL
224
A

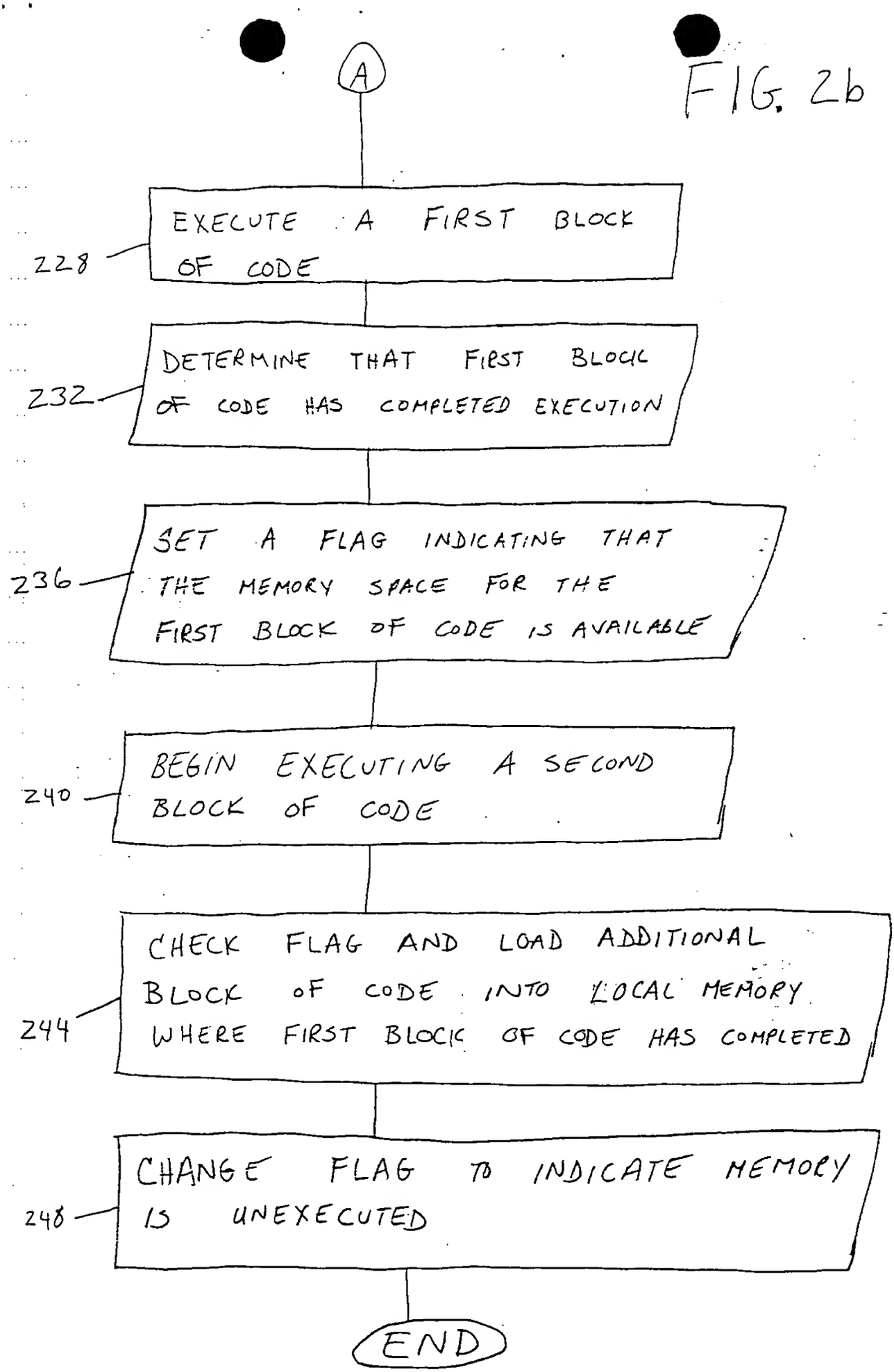
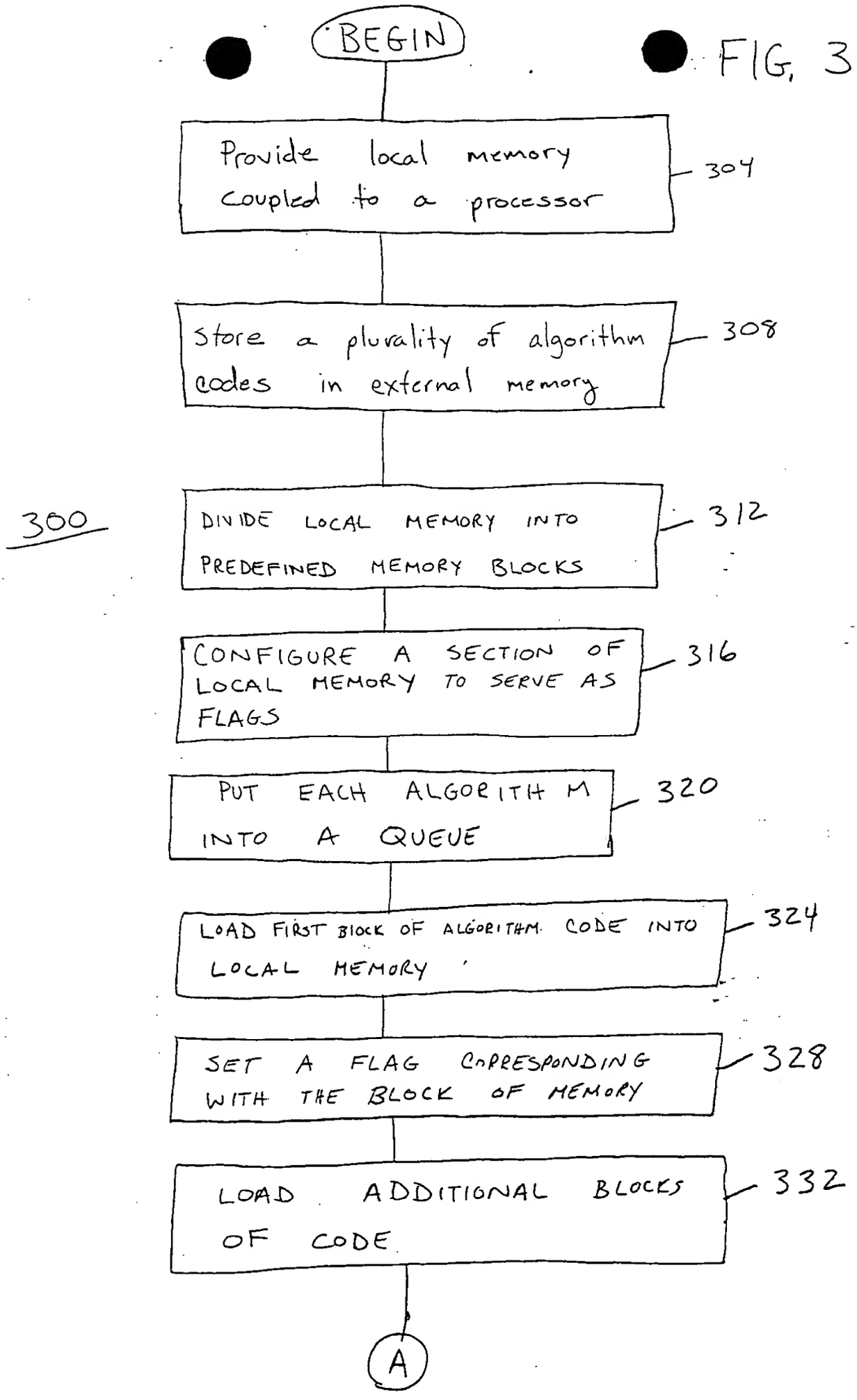

A
EXECUTE A FIRST BLOCK OF CODE
228
DETERMINE THAT FIRST BLOCK OF CODE HAS COMPLETED EXECUTION
232
SET A FLAG INDICATING THAT THE MEMORY SPACE FOR THE FIRST BLOCK OF CODE IS AVAILABLE
236
BEGIN EXECUTING A SECOND BLOCK OF CODE
240
CHECK FLAG AND LOAD ADDITIONAL BLOCK OF CODE INTO LOCAL MEMORY WHERE FIRST BLOCK OF CODE HAS COMPLETED
244
CHANGE FLAG TO INDICATE MEMORY IS UNEXECUTED
248
END

FIG. 2b

FIG. 3a


BEGIN
Provide local memory coupled to a processor
304
Store a plurality of algorithm codes in external memory
308
300
DIVIDE LOCAL MEMORY INTO PREDEFINED MEMORY BLOCKS
312
CONFIGURE A SECTION OF LOCAL MEMORY TO SERVE AS FLAGS
316
PUT EACH ALGORITHM INTO A QUEUE
320
LOAD FIRST BLOCK OF ALGORITHM CODE INTO LOCAL MEMORY
324
SET A FLAG CORRESPONDING WITH THE BLOCK OF MEMORY
328
LOAD ADDITIONAL BLOCKS OF CODE
332
A

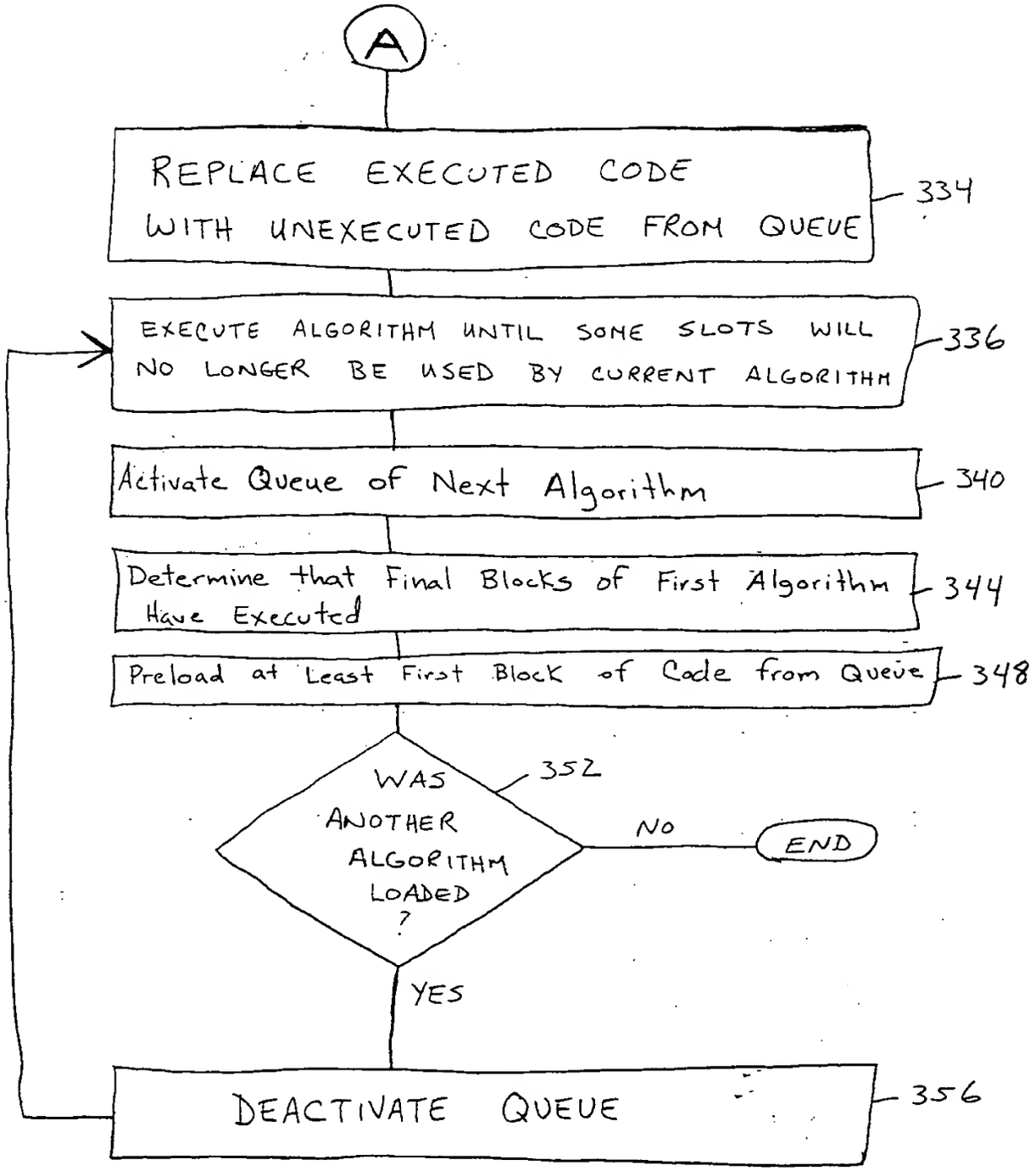

A
REPLACE EXECUTED CODE WITH UNEXECUTED CODE FROM QUEUE
334
EXECUTE ALGORITHM UNTIL SOME SLOTS WILL NO LONGER BE USED BY CURRENT ALGORITHM
336
Activate Queue of Next Algorithm
340
Determine that Final Blocks of First Algorithm Have Executed
344
Preload at Least First Block of Code from Queue
348
WAS ANOTHER ALGORITHM LOADED ?
352
NO
END
YES
DEACTIVATE QUEUE
356

Fig. 3b

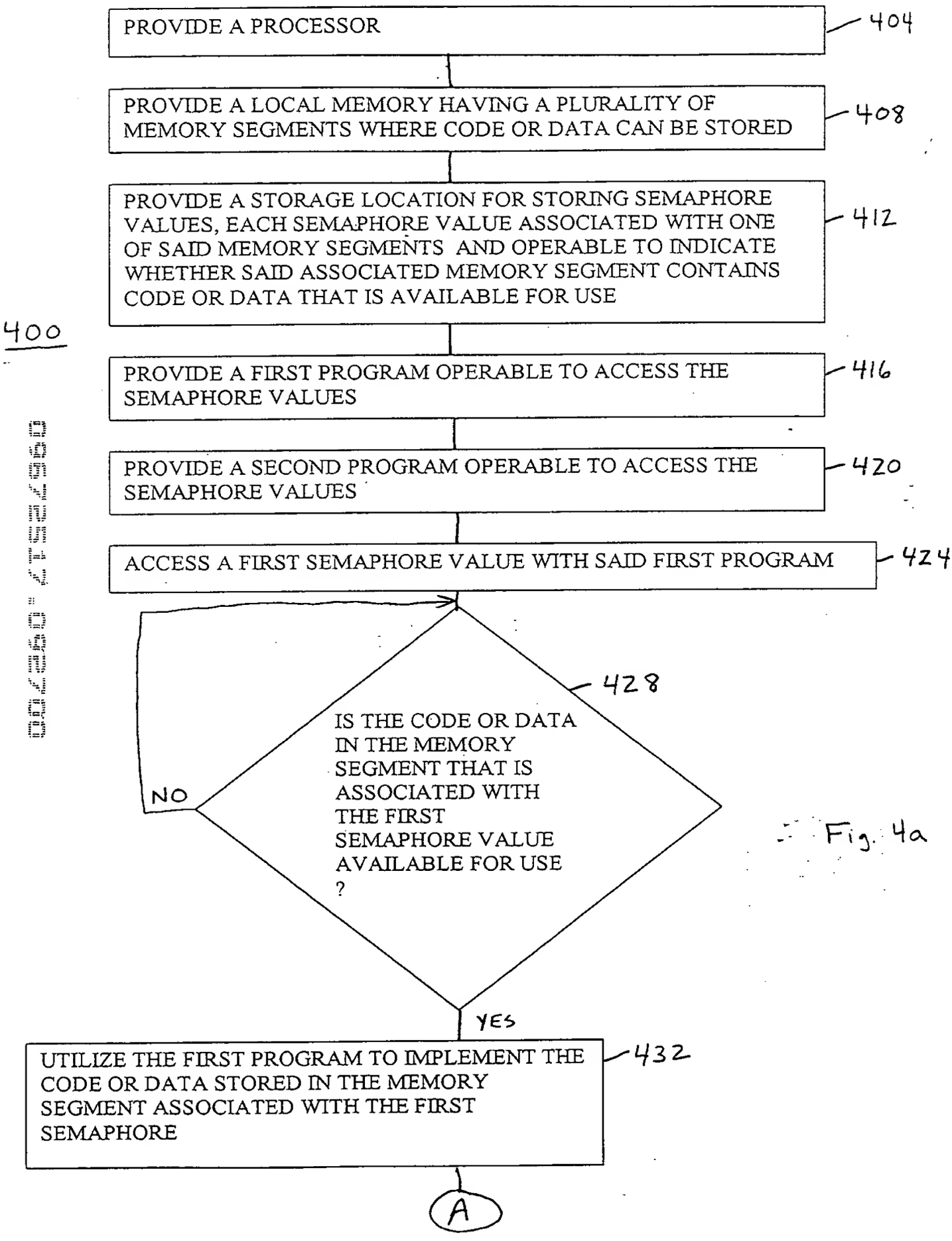

400
PROVIDE A PROCESSOR
404
PROVIDE A LOCAL MEMORY HAVING A PLURALITY OF MEMORY SEGMENTS WHERE CODE OR DATA CAN BE STORED
408
PROVIDE A STORAGE LOCATION FOR STORING SEMAPHORE VALUES, EACH SEMAPHORE VALUE ASSOCIATED WITH ONE OF SAID MEMORY SEGMENTS AND OPERABLE TO INDICATE WHETHER SAID ASSOCIATED MEMORY SEGMENT CONTAINS CODE OR DATA THAT IS AVAILABLE FOR USE
412
PROVIDE A FIRST PROGRAM OPERABLE TO ACCESS THE SEMAPHORE VALUES
416
PROVIDE A SECOND PROGRAM OPERABLE TO ACCESS THE SEMAPHORE VALUES
420
ACCESS A FIRST SEMAPHORE VALUE WITH SAID FIRST PROGRAM
424
428
IS THE CODE OR DATA IN THE MEMORY SEGMENT THAT IS ASSOCIATED WITH THE FIRST SEMAPHORE VALUE AVAILABLE FOR USE ?
NO
YES
UTILIZE THE FIRST PROGRAM TO IMPLEMENT THE CODE OR DATA STORED IN THE MEMORY SEGMENT ASSOCIATED WITH THE FIRST SEMAPHORE
432
A

Fig. 4a

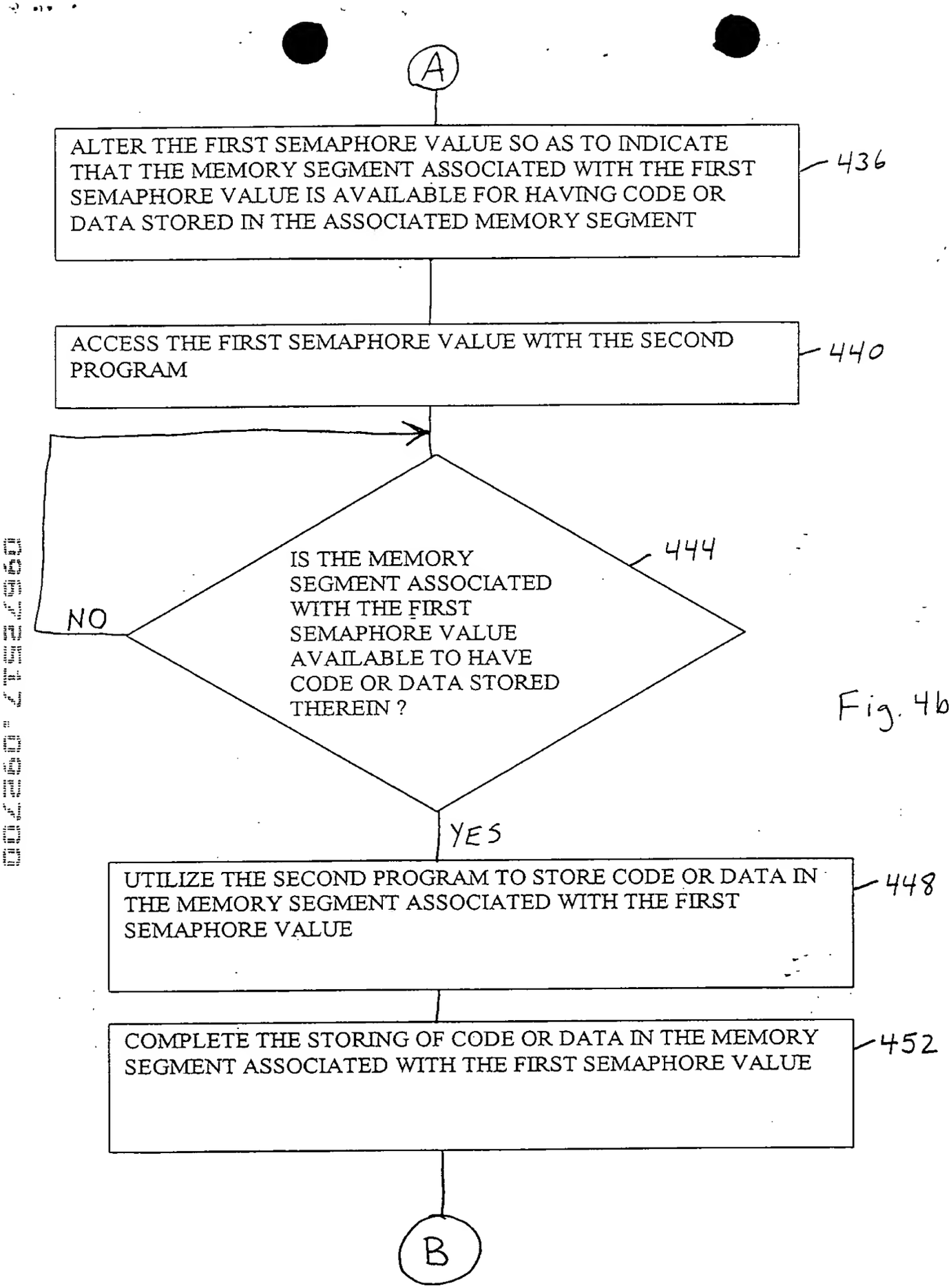

A
ALTER THE FIRST SEMAPHORE VALUE SO AS TO INDICATE THAT THE MEMORY SEGMENT ASSOCIATED WITH THE FIRST SEMAPHORE VALUE IS AVAILABLE FOR HAVING CODE OR DATA STORED IN THE ASSOCIATED MEMORY SEGMENT
436
ACCESS THE FIRST SEMAPHORE VALUE WITH THE SECOND PROGRAM
440
IS THE MEMORY SEGMENT ASSOCIATED WITH THE FIRST SEMAPHORE VALUE AVAILABLE TO HAVE CODE OR DATA STORED THEREIN ?
444
NO
YES
UTILIZE THE SECOND PROGRAM TO STORE CODE OR DATA IN THE MEMORY SEGMENT ASSOCIATED WITH THE FIRST SEMAPHORE VALUE
448
COMPLETE THE STORING OF CODE OR DATA IN THE MEMORY SEGMENT ASSOCIATED WITH THE FIRST SEMAPHORE VALUE
452
B

Fig. 4b

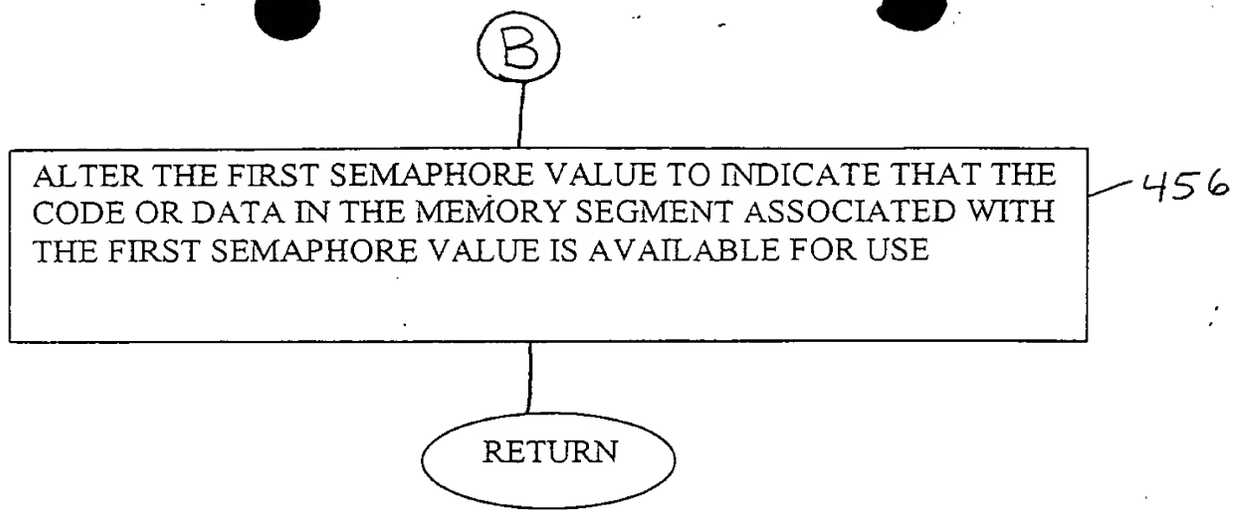

B
ALTER THE FIRST SEMAPHORE VALUE TO INDICATE THAT THE CODE OR DATA IN THE MEMORY SEGMENT ASSOCIATED WITH THE FIRST SEMAPHORE VALUE IS AVAILABLE FOR USE
456
RETURN

Fig. 4c